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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

VU, MICHAEL T

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/629,386	Applicant(s) AWAD ET AL.	
	Examiner MICHAEL T. VU	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mogensen (US 2004/0105460) in view of Larsson (US 5,241,690), and further in view of Walton (US 6,751,187).

Regarding claims 1, 19, 20, 21, 22 and 23, Mogensen teaches an adaptive modulation and coding [0004] method comprising: selecting one of a plurality of different available modulation and coding levels to apply to a signal transmitted from a transmitter to a receiver [0004-0005, 0038-0042], the selection being based on a comparison between a signal transmission quality and a threshold value [0015-0016, 0046]; and

But Mogensen does not teach adjusting the threshold value when the signal transmission quality is within a predetermined range of the threshold value, and maintaining the threshold value unchanged when the signal transmission quality is outside that range.

However, Larsson teaches adjusting the threshold value when the signal transmission quality is within a predetermined range of the threshold value (Col. 1, line 65 to Col. 2, line 67), and maintaining the threshold value unchanged when the signal transmission quality is outside that range (See Col. 2, line 30 to Col. 3, line 31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mogensen, with Larsson's teaching such that adjusting the threshold value when the signal transmission quality is within a predetermined range of the threshold value, and maintaining the threshold value unchanged when the signal transmission quality is outside that range, in order to actual adjustment and/or to control of the transmission power in radio communication between a mobile station and a base station for avoiding those disturbance and/or interference occurs.

But Mogensen and Larsson do not clearly teach which leaves a selected modulation and coding level unchanged even though the comparison between a signal transmission quality and the threshold value indicates that the modulation and coding level should be increase, when the transmitted signal is not successfully received at the receiver.

However, Walton teaches a selected modulation and coding level unchanged even though the comparison between a signal transmission quality and the threshold value indicates that the modulation and coding level should be increase, when the transmitted signal is not successfully received at the receiver (Col. 1, line 65 to Col. 2 line 44), (Col. 4, lines 5-61), (Col. 14, line 61 to Col. 15, line 43), and Col. 29, lines 22-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mogensen and Larsson, with Walton's system such that selected modulation and coding level remain unchanged even though the comparison between a signal transmission quality and the threshold value indicates that the modulation and coding level should be increase, when the transmitted signal is not successfully received at the receiver, in order to increase the effectively and efficiently transmission capacities in a wireless communication system such as voice, data, and so on to improve performance and reduce signal-to-noise-plus-interference ratios.

Regarding claim 2, Mogensen, Larsson, and Walton teach a method as claimed in claim 1, wherein the signal transmission quality is a signal-to-interference ratio [(col. 2, lines 24-44) of Walton.

Regarding claim 3, Mogensen, Larsson, and Walton teach a method as claimed in claim 1, wherein the signal transmission quality is measured by the receiver (Col. 29, lines 22-61) of Walton.

Regarding claim 4, Mogensen, Larsson, and Walton teach a method as claimed in claim 1, wherein in the adjusting step the threshold value is increased by an upward

amount when the signal is not received successfully by the receiver ((Col. 14, line 61 to Col. 15, line 43) of Walton), and is decreased by a downward amount when the signal is received successfully by the receiver (Col. 29, lines 22-65) of Walton.

Regarding claim 5, Mogensen, Larsson, and Walton teach a method as claimed in claim 1, wherein in the adjusting step the threshold value is increased by an upward amount when the signal received by the receiver fails a cyclic redundancy check (Col. 2, lines 11-44) of Walton, and is decreased by a downward amount when the received signal passes the cyclic redundancy check (Col. 5, lines 17-59, Col. 29, line 22-55) of Walton.

Regarding claim 6, the combination of Mogensen, Larsson, and Walton teach a method as claimed in claim 4, wherein the upward amount is different from the downward amount (Col. 5, lines 17-59) of Walton.

Regarding claim 7, the combination of Mogensen, Larsson, and Walton teach a method as claimed in claim 6, wherein the downward amount is smaller than the upward amount (See Col. 29, lines 39-65) of Walton.

Regarding claim 8, the combination of Mogensen, Larsson, and Walton teach a method as claimed in claim 4, wherein a ratio of the downward amount to the upward amount is dependent upon a target error rate of the received signal (See Col. 29, lines 39-65) of Walton.

Regarding claim 9, the combination of Mogensen, Larsson, and Walton teach a method as claimed in claim 4, wherein the downward amount and/or the upward

amount is/are dependent upon a difference between the threshold value and the signal transmission quality (See Col. 29, lines 22-65) of Walton.

Regarding claim 10, the combination of Mogensen, Larsson, and Walton teach a method as claimed in claim 9, wherein each the amount increases as the difference decreases (Col. 29, line 22-55) of Walton.

Regarding claim 11, Mogensen, Larsson, and Walton teach a method as claimed in claim 1, having a threshold value for each pair of adjacent the levels , and in the selecting step the selection is based on a comparison between the signal transmission quality and the threshold values (Col. 29, lines 22-65) of Walton.

Regarding claim 12, the combination of Mogensen, Larsson, and Walton teach a method as claimed in claim 11, wherein each the threshold value is adjusted only when the signal transmission quality is within a predetermined range of the threshold value concerned [0046-0051] of Mogensen.

Regarding claim 13, the combination of Mogensen, Larsson, and Walton teach a method as claimed in claim 12, wherein the predetermined range for at least one the threshold value is different from the predetermined range for another the threshold value [0039-0051] of Mogensen.

Regarding claim 14, Mogensen, Larsson, and Walton teach a method as claimed in claim 1, wherein the adjusting step and the selecting step are carried out in the receiver (Col. 29, lines 39-65) of Walton, and the receiver reports the selected level to the transmitter (Col. 29, lines 22-65) of Walton.

Regarding claim 15, Mogensen, Larsson, and Walton teach a method as claimed in claim 1, wherein the receiver reports the signal transmission quality to the transmitter Col. 29, lines 39-65) of Walton, and the adjusting step and selecting step are carried out in the transmitter (Col. 29, lines 22-65) of Walton.

Regarding claim 16, Mogensen, Larsson, and Walton teach a method as claimed in claim 1, wherein the selecting step is carried out after the adjusting step Col. 29, lines 39-65) of Walton, and in the selecting step selection of a higher level, if indicated by the comparison between the signal (Col. 29, lines 22-65) of Walton.

Regarding claim 17, Mogensen, Larsson, and Walton teach a method as claimed in claim 1, wherein the transmitter is a base station of a wireless communication system, and the receiver is a user equipment of the system (Col. 1, lines 11-63) of Larsson.

Regarding claim 18, the combination of Mogensen, Larsson, and Walton teach a method as claimed in claim 17, wherein the signal is a downlink packet access signal [0022] of Mogensen.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Vu whose telephone number is (571) 272-8131. The examiner can normally be reached on 8:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Charles N. Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Vu/
Examiner
AU-2617

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617